




Faculty Details proforma for College Web-site



Title	Prof.	First Name	Rachna	Last Name	Joshi	
Designation	Professor					
Address	Acharya Narendra Dev College, (University of Delhi), Govindpuri, Kalkaji, New Delhi					
Phone No Office	----					
Email/ Web-Page	rachnajoshi@andc.du.ac.in -----					
Educational Qualifications						
Degree	Institution				Year	
B. Sc (H) Physics	Maitreyi College, University of Delhi				1996	
M. Sc. Physics	Department of Physics and Astrophysics, University of Delhi				1998	
Ph. D in Physics	Department of Physics and Astrophysics, University of Delhi				2002	
Career Profile						
<u>Name of Institution</u>		<u>Position Held</u>		<u>From</u>	<u>To</u>	
Acharya Narendra Dev college, University of Delhi.		Lecturer		06.08.1998	30.04.1999	
Dyal Singh College, University of Delhi.		Lecturer		18.08.2000	30.04.2003	
Acharya Narendra Dev college, University of Delhi.		Lecturer		23.07.2003	12.11.2006	
Acharya Narendra Dev college, University of Delhi.		Assistant Professor		14.11.2006	22.02.2012	
Acharya Narendra Dev college, University of Delhi.		Associate Professor		22.02.2012	27.05.2022	
Acharya Narendra Dev college, University of Delhi.		Professor		28.05.2022	Till date	

Administrative Assignments	
<u>Current Administrative Assignments (2022-2024)</u>	
1. <u>Course Coordinator</u>	
B. Sc. Physical Sciences (Electronics)	
2. <u>Convener</u>	
Editorial Committee (Annual Reports Section)	
3. <u>Member</u>	
I. T. Committee	
<u>Past Administrative Assignments</u>	
2020-2022	Member, Sports committee
2020-2022	Member, Environment Club
2018-2020	Member, Alumni affairs committee
2018-2020	Member, Sports committee
2016-2018	Member, Alumni affairs committee
2016-2018	Member, Environment Club
2014-2016	TIC Physics Department
2014-2016	NAAC coordinator, Physics Department
2012-2014	Member, Canteen committee
2012-2014	Convener, Garden committee
2012-2014	Member, IT committee
2010-2012	Member, Sports committee
2010-2012	Member, SPICMACAY
2008-2010	Member, Magazine and Prospectus Committee
2006-2008	Member, Women Students; Affairs Committee
2006-2008	Member, SPICMACAY
2004-2006	Member, Women Students; Affairs Committee
Areas of Interest / Specialization	
<u>Teaching</u>	
Communication Electronics, Digital electronics	
<u>Research</u>	
Multiphoton processes in atoms, Confined Atoms, Shannon Entropy, Atoms Embedded in Plasma, Atoms in intense laser fields, High Harmonic Generation	
Subjects Taught	
Digital Electronics	
Communication Electronics	
Mechanics	
Research Guidance	

Publications Profile	
<u>Publications in International Scopus Indexed Journals</u>	
1. Rachna Joshi , “Two photon transitions in $H@C_{60}$ in Debye plasma environment”, Spectroscopy Letters, 57, (2024) Print ISSN: 0038-7010 Online ISSN: 1532-2289, https://doi.org/10.1080/00387010.2024.2342250	

2. **Rachna Joshi**, “High harmonic generation spectra for free and Plasma embedded Hydrogen driven by two- and three-color laser field”, Eur. Phys. J. D., 77:186 (2023).
Electronic ISSN 1434-6079 Print ISSN 1434-6060, <https://doi.org/10.1140/epjd/s10053-023-00760-z>
3. **Rachna Joshi**, “Shannon Entropy for Endohedrally confined hydrogen atom embedded in Debye plasma”, Eur. Phys. J. Plus, 138:760 (2023).
e- ISSN: 2190-5444. <https://doi.org/10.1140/epjp/s13360-023-04400-8>
4. **Rachna Joshi**, Nupur Verma and Man Mohan, “Shannon entropy along hydrogen isoelectronic sequence using Numerov method”, Revista Mexicana de Física, 69. 060401 (2023).
e-ISSN: 2683-2224, <https://doi.org/10.31349/RevMexFis.69.060401>
5. Nupur Verma and **Rachna Joshi**, “Shannon entropy for hydrogen atom in Debye and quantum plasma environment”, Physics of Plasmas, 30(6), 063905, (2023).
ISSN 1070-664X EISSN 1089-7674
<https://doi.org/10.1063/5.0146178>
6. **Rachna Joshi**, “Fine structure calculations, polarizability and oscillator strengths for C VI ion embedded in Debye plasma applying accurate Numerov method”, Spectroscopy Letters. 56(5), 273-282, (2023).
Print ISSN: 0038-7010 Online ISSN: 1532-2289, <https://doi.org/10.1080/00387010.2023.2206906>
7. **Rachna Joshi**, Pranav Kumar, Alok K. S. Jha and Man Mohan, “Above Threshold Ionization spectra for Debye plasma embedded atom interacting with femtosecond laser pulse”, Spectroscopy Letters. 56(4), 194-203, (2023).
Print ISSN: 0038-7010 Online ISSN: 1532-2289; <https://doi.org/10.1080/00387010.2023.2194366>
8. **Rachna Joshi**, “Two-photon Bound to Bound Transitions under Strong Screening Potential”, The European Physical Journal Plus, 137(9), 996 (2022)
e- ISSN: 2190-5444 ; <https://doi.org/10.1140/epjp/s13360-022-03224-2>
9. **Rachna Joshi**, Arun Goyal, Pranav Kumar and Man Mohan, “Theoretical analysis of relativistic energy corrections, partition function and thermodynamic properties of spherically confined hydrogen atom”, Eur. Phys. J. D, 76(8), 149 (2022).
Electronic ISSN 1434-6079 Print ISSN 1434-6060 ; <https://doi.org/10.1140/epjd/s10053-022-00484-6>
10. **Rachna Joshi**, “Double quantum ionization cross-sections for More General Exponential Cosine Screened Coulomb potential”, Spectroscopy Letters, 55(6) , 414-423 (2022)
Print ISSN: 0038-7010 Online ISSN: 1532-2289 ; <https://doi.org/10.1080/00387010.2022.2088559>
11. **Rachna Joshi**, “Micrometre double-quantum ionization of Rydberg Hydrogen using linearly and circularly polarized light”, Eur. Phys. J. D, 76(2), 37, (2022).
Electronic ISSN 1434-6079 Print ISSN 1434-6060 ; <https://doi.org/10.1140/epjd/s10053-022-00366-x>
12. **Rachna Joshi**, “High harmonic generation spectra for Lithium embedded in plasma environment”, Spectroscopy Letters, 55(3), 192-198, (2022)
Print ISSN: 0038-7010 Online ISSN: 1532-2289 ; <https://doi.org/10.1080/00387010.2022.2046104>
13. Seema Dabas and **Rachna Joshi**, “A numerical evaluation of Shannon entropy for Modified Hulthen potential”, Eur. Phys. J. D, 76(5), 95 (2022).
Electronic ISSN 1434-6079 Print ISSN 1434-6060 ; <https://doi.org/10.1140/epjd/s10053-022-00421-7>
14. **Rachna Joshi**, “Two-photon transitions to Rydberg states of hydrogen”, Physics Letters A, 361, 352-355 (2007).
ISSN 0375-9601, <https://doi.org/10.1016/j.physleta.2006.09.055>
15. K. Batra, **R. Kundliya**, and Man Mohan, “Atom in a femtosecond bichromatic laser field”, Pramana, 62, 31–36 (2004).
E-ISSN: 2249-2976, <https://doi.org/10.1007/BF02704422>.
16. **R Kundliya** and Man Mohan, “Stabilization of hydrogen atom in intense laser fields”, Physics Letters A, 291, 22, (2001).
ISSN 0375-9601, [https://doi.org/10.1016/S0375-9601\(01\)00684-3](https://doi.org/10.1016/S0375-9601(01)00684-3)

17. **R. Kundliya**, K. Batra and Mohan, Man, “*Two-photon ionization using elliptically polarized light*”, Physical Review A, 64, 043404, (2001).
ISSN 1050-2947, <https://link.aps.org/doi/10.1103/PhysRevA.64.043404>
18. **R. Kundliya**, K. Batra and Mohan, “*Multiphoton ionization of atoms using the pseudostate summation technique*”, Journal of Physics B, 34, 4083, (2001).
ISSN 0953-4075, <https://doi.org/10.1088/0953-4075/34/21/301>
19. **R. Kundliya**, V. Prasad and Man Mohan, “*The two-photon process in an atom using the pseudostate summation technique*”, Journal of Physics B, 33, 5263, (2000).
ISSN 0953-4075, <https://doi.org/10.1088/0953-4075/33/23/301>
20. M Mohan, **R. Kundliya** and K Baliyan, “*Photo ionisation of Ground State of Ni XIX Using a Relativistic Breit-Pauli Approximation*”, Physica Scripta, 62, 307, (2000).
ISSN 1402-4896, <https://doi.org/10.1238/physica.regular.062a00307>

Publications in International Peer Reviewed Journals

1. **Rachna Joshi**, Pranav Kumar, Alok Singh Jha and Tarun Kumar, “*Pressure ionization, Polarizability and Screening Constants in confined Hydrogen like ions of Astrophysical importance*”, Journal of Atomic, Molecular, Condensed Matter and Nano Physics, 8(2), 83-94 (2021).
ISSN 2582-8215 ; <http://doi.org/10.26713/jamcnp.v8i2.1684>

Chapters in books

1. **Rachna Joshi** (2024) “*Relativistic energy calculations for Modified Hulthen Potential*”, In, Futuristic Trends in Physical Sciences, Ed. M. Chattopadhyay, R. Selva Kumar, S. Kaothekar, R. Borah, S. L. Talwar, M. Kaur, H. K. Pandey and S. Singh, IIP Series, Volume 3, Book 2, Part 2, Chapter 3, page 160, Iterative International Publishers (IIP), Karnataka, India. e-ISBN: 978-93-5747-478-8
<https://www.iipseries.org/view-pub-book.php?bookid=133&bookname=futuristic-trends-in-physical-sciences-volume-3-book-2>
<https://www.doi.org/10.58532/V3BKPS2P2CH3>
2. **Rachna Joshi** and Nupur Verma, (2023) “*Fine structure calculations for Hydrogen atom in dense plasma environment*”, In: A Closer Look at the H Atom . Ed. A. K. Roy, Nova Science Publishers, NY, USA (In Press)
3. Nupur Verma and **Rachna Joshi** (2022) “*An overview of information theoretic measures*”, In: Advance Research in Physical & Chemical Sciences and Engineering, Ed. : S. K. Singh, R. K. Shukla and C. K. Dixit, MKSES Publisher Lucknow, (India) ; Page 144-159.
ISBN: 978-93-91248-47-5
<https://doi.org/10.5281/zenodo.7460640>
4. **Rachna Joshi**, Pawan Kumar and Man Mohan (2010) “*High Harmonic generation in atoms in intense laser fields*”, In: Laser and Bose Einstein Condensation Physics. Narosa Publishing House.
ISBN: 978-81-8487-064-0
5. Mohan M., **Kundliya R.** (2002) “*Multiphoton processes in laser field*” In: Mohan M. (eds) Current Developments in Atomic, Molecular, and Chemical Physics with Applications. Springer, Boston, MA.
Print ISBN: 978-1-4613-4930-3 Online ISBN: 978-1-4615-0115-2
https://doi.org/10.1007/978-1-4615-0115-2_5

Papers Presented in Conferences

(Published as full articles in Conference Proceedings in Refereed Journals)

1. **R. Kundliya**, V. Prasad, and Man Mohan, “*Two-photon excitation using L^2 technique*”, In, XIIIth National Conference on Atomic and Molecular Physics held at the Department of Theoretical Physics, Indian Association for the Cultivation of Science, Jadavpur, Kolkata-700 032 during 16-20 January, 2001
Published in, Indian Journal of Physics Part B, 76(4), 535, (2002).
ISSN 0973-1458, <http://hdl.handle.net/10821/6469>

2. **R. Kundliya**, K. Batra, and Man Mohan, “*Two-photon ionization using pseudostate summation technique*”, In, XIIIth National Conference on Atomic and Molecular Physics held at the Department of Theoretical Physics, Indian Association for the Cultivation of Science, Jadavpur, Kolkata-700 032 during 16-20 January, 2001 Published in, Indian Journal of Physics Part B, 76(4), 563, (2002). ISSN 0973-1458, <http://hdl.handle.net/10821/6476>

Conference / Presentations /Workshops

Papers Presented in Conferences:

1. “*Towards development of Hydrogen fuel : For clean and safe environment (Study of properties of Hydrogen atom under pressure)*”, Rachna Joshi, In 7th International Conference of Indian Network for Soil Contamination Research (INSCR), “Modulating the Environment with Microbes”, November 08-11, 2022, Session 9: Research at UG/PG level (Online presentation)
2. “*Shannon entropy for Hydrogen in Plasma*”, Rachna Joshi, In International Conference on Applied Mathematics and Science (ICAMS-22), May 21, 2022, Mumbai, India. (Online presentation)
3. “*Multiphoton excitation and ionization of atom using L^2 technique*”, Rachna Joshi and Man Mohan, In International Conference on “Current Developments in Atomic, Molecular and Optical Physics with Applications”, (March 2006), University of Delhi, Delhi.
4. “*Study of polarization effect in two quantum photo ionization*”, R. Kundliya and Man Mohan, In International Conference on “Current Developments in Atomic, Molecular and Chemical Physics with Applications”, (2002), University of Delhi, Delhi.

Contribution in organizing conferences:

1. Session Chair, 3rd International Symposium on Ciliate Biology, November 08, 2022 held at Acharya Narendra Dev College, University of Delhi
2. Member, Scientific Committee, International Conference on “Current Developments in Atomic, Molecular and Optical Physics with Applications”, March 2006, Department of Physics and Astrophysics, University of Delhi, Delhi.
3. Member, Organizing Committee, International Conference on “Current Developments in Atomic, Molecular and Chemical Physics with Applications”, 20-22 March 2002, Department of Physics and Astrophysics, University of Delhi, Delhi.

Workshops and Conferences attended:

1. Attended “National conference on Recent Advances in Polymer Nanocomposites” Jan 14-15, 2011 held in Department of Physics, Zakir Hussain College, University of Delhi.
2. Attended two days workshop on “Quantum Mechanics: Theory and Applications” November 21-22, 2008, Deen Dayal Upadhyay College, University of Delhi, Delhi.

Faculty Development Programmes attended:

1. One Week Online Faculty Development Program On “Advanced Research Methodology Applicable in New Education Policy” held during June 22-28, 2022 and jointly organized by Digvijay Nath Post Graduate College, Gorakhpur, UP and Science Tech Institute, Lucknow.

Webinars attended

1. Attended Webinar on ‘QuillBot: One Stop Place For Making Writing Painless’ organized by Acharya Narendra Dev College Library on September 29, 2022.
2. Attended workshop for Reviewers “How to get the most out of being a

<p>reviewer of scientific articles” organized by Elsevier Researcher Academy, on August 10, 2022.</p> <ol style="list-style-type: none"> 3. Attended Webinar on “Compliment Journals with reference books On Science Direct”, organized by Elsevier Researcher Academy, on July 28, 2022. 4. Attended Webinar on “New PQDT Global and Citation Connection: Ideating Your Literature Review with New Insight” organized by University of Delhi in Collaboration with ProQuest, Part of Clarivate, on July 14, 2022. 5. Attended Webinar on “Research Data Management-Why It Matters and How to Manage” organized by Elsevier Researcher Academy at Elsevier Asia Pacific, on Thursday 14 July, 2022. 6. Attended Webinar on “Managing References made easy using Mendeley” organized by Elsevier Researcher Academy at University of Delhi, on Wednesday May 25, 2022. 7. Attended Webinar on “Understanding Plagiarism Detection Software Ouriginal” organized by University of Delhi in Association With eGalactic Pune on January 28, 2022.
<p>Research Projects (Major Grants/Research Collaboration)</p> <p>---</p>
<p>Awards and Distinctions</p> <ol style="list-style-type: none"> 1. Session Chair, 3rd International Symposium on Ciliate Biology, November 08, 2022 held at Acharya Narendra Dev College, University of Delhi. 2. Member, Organizing Committee, International Conference on “Current Developments in Atomic, Molecular and Chemical Physics with Applications”, 20-22 March 2002, Department of Physics and Astrophysics, University of Delhi, Delhi. 3. Member, Scientific Committee, International Conference on “Current Developments in Atomic, Molecular and Optical Physics with Applications”, March 2006, Department of Physics and Astrophysics, University of Delhi, Delhi.
<p>Association With Professional Bodies</p> <ol style="list-style-type: none"> 1. Life member, Indian Association of Physics teachers Membership No. - OMNO: 7196 2. Life member, Indian Laser Association Membership No. - 1465 3. Life member, Plasma Science Society of India Membership No. - LM 1766 4. Life Member, Indian Society of Atomic and Molecular Physics (Membership No. - 1664) 5. Life Member, Division of Plasma Physics, Association of Asia Pacific Physical Societies (Membership No. - 2110)
<p>Other Activities</p> <p><u>Refresher or orientation courses attended:</u></p> <ol style="list-style-type: none"> 1. Attended Refresher Course in Biotechnology and its Applications (Interdisciplinary) conducted by the Centre of Professional Development in Higher Education (C. P. D. H. E.), D. U. from 21st July – 10 August, 2009. 2. Attended Refresher course in Physics and Electronics conducted by the Centre of Professional Development in Higher Education (C. P. D. H. E.), D. U. from December 1-22, 2008. 3. Attended orientation course “OR53” conducted by the Centre of Professional Development in Higher Education (C. P. D. H. E.), D. U. from May 03 – 30, 2007.

A small, square image containing a handwritten signature in blue ink. The signature appears to be the name 'Pachma' written in a cursive style.

Signature of Faculty Member